CLAIMS

We claim:

1. A targeting construct comprising:

   (a) a first polynucleotide sequence homologous to at least a first portion of a Kir5.1 gene;

   (b) a second polynucleotide sequence homologous to at least a second portion of the Kir5.1 gene; and

   (c) a selectable marker.

2. A method of producing a targeting construct, the method comprising:

   (a) providing a first polynucleotide sequence homologous to at least a first portion of a Kir5.1 gene;

   (b) providing a second polynucleotide sequence homologous to at least a second portion of the Kir5.1 gene;

   (c) providing a selectable marker; and

   (d) inserting the first sequence, second sequence, and selectable marker into a vector to produce the targeting construct.

3. A cell comprising a disruption in a Kir5.1 gene.
4. The cell of claim 3, wherein the cell is a murine cell.
5. The cell of claim 4, wherein the murine cell is an embryonic stem cell.
6. A non-human transgenic animal comprising a disruption in a Kir5.1 gene.
7. The non-human transgenic animal of claim 6, wherein the transgenic animal is a mouse.
8. A cell derived from the transgenic mouse of claim 7.
9. A method of producing a transgenic mouse comprising a disruption in a Kir5.1 gene, the method comprising:

   (a) introducing the targeting construct of claim 1 into a cell;

   (b) introducing the cell into a blastocyst;

   (c) implanting the resulting blastocyst into a pseudopregnant mouse, wherein said pseudopregnant mouse gives birth to a chimeric mouse; and

   (d) breeding the chimeric mouse to produce the transgenic mouse.

10. A method of identifying an agent that modulates the expression or function of a Kir5.1 gene, the method comprising:

    (a) providing a non-human transgenic animal comprising a disruption in the Kir5.1 gene;

    (b) administering the agent to the non-human transgenic animal; and

    (c) determining whether the expression or function of the disrupted Kir5.1 gene in the non-human transgenic animal is modulated.

11. A method of identifying an agent that modulates the expression or function of a Kir5.1 gene, the method comprising:

    (a) providing a cell comprising a disruption in the Kir5.1 gene;

    (b) contacting the cell with the agent; and

    (c) determining whether the expression or function of the Kir5.1 gene is modulated.

12. The method of claim 11, wherein the cell is derived from the non-human transgenic animal of claim 6.

13. An agent identified by the method of claim 10 or claim 11.

14. A transgenic mouse comprising a disruption in a Kir5.1 gene, wherein there is no significant expression of the Kir5.1 gene in the transgenic mouse.

15. A cell derived from the transgenic mouse of claim 14.

16. A transgenic mouse comprising a disruption in a Kir5.1 gene, wherein the transgenic mouse exhibits increased acoustic startle response, relative to a wild-type control mouse.

17. The transgenic mouse of claim 16, wherein the transgenic mouse exhibits increased anxiety, relative to a wild-type control mouse.

18. The transgenic mouse of claim 16, wherein the transgenic mouse exhibits a stimulus processing disorder.

19. A transgenic mouse comprising a disruption in a Kir5.1 gene, wherein the transgenic mouse exhibits a growth disorder.

20. The transgenic mouse of claim 19, wherein the growth disorder is dwarfism.

21. A transgenic mouse comprising a disruption in a Kir5.1 gene, wherein the transgenic mouse exhibits decreased body weight, relative to a wild-type control mouse.

22. A transgenic mouse comprising a disruption in a Kir5.1 gene, wherein the transgenic mouse exhibits a spleen abnormality.

23. The transgenic mouse of claim 22, wherein the spleen abnormality is decreased spleen weight, relative to a wild-type control mouse.

24. The transgenic mouse of claim 22, wherein the spleen abnormality is decreased spleen weight:body weight ratio, relative to a wild-type control mouse.

25. A method of identifying an agent that ameliorates a phenotype associated with a disruption in a Kir5.1 gene, the method comprising:

    (a) administering an agent to a transgenic mouse comprising a disruption in the Kir5.1 gene; and

    (b) determining whether the agent ameliorates at least one of the following phenotypes: anxiety; dwarfism; decreased body size; decreased body weight; decreased spleen weight; and decreased spleen weight:body weight ratio.

26. An agent identified by the method of claim 25.

27. An agonist or antagonist of Kir5.1.

28. Phenotypic data associated with a transgenic mouse comprising a disruption in a Kir5.1 gene, wherein the phenotypic data is in an electronic database.